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**Eurocode 3: Projektiranje jeklenih konstrukcij - 2. del: Jekleni mostovi  
(prevzet ENV 1993-2:1997 z metodo platnice)**

Eurocode 3: Design of steel structures - Part 2: Steel bridges

Eurocode 3: Calcul des structures en acier - Partie 2: Pont métalliques

Eurocode 3: Bemessung und Konstruktion von Stahlbauten - Teil 2:  
Stahlbrücken

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SIST ENV 1993-2:2001

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Deskriptorji: jeklene konstrukcije, konstrukcijska jekla, mostovi, računanje

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ICS 91.010.30; 91.080.10; 93.040

Referenčna številka  
SIST ENV 1993-2:2001 ((sl),en)

Nadaljevanje na straneh od II do V in od 1 do 182

## NACIONALNI UVOD

Predstandard SIST ENV 1993-2 ((sl),en), Eurocode 3: Projektiranje jeklenih konstrukcij – 2. del: Jekleni mostovi, prva izdaja, 2001, ima status slovenskega predstandarda in je z metodo platnice prevzet evropski predstandard ENV 1993-2 (en), Eurocode 3: Design of steel structures - Part 2: Steel bridges, October 1997.

## NACIONALNI PREGOVOR

Evropski predstandard ENV 1993-2:1997 je pripravil tehnični odbor Evropskega komiteja za standardizacijo CEN/TC 250 Konstrukcijski evrokodi.

Pripravo tega predstandarda sta CEN poverila Evropska komisija in Evropsko združenje za prosto trgovino.

Odločitev za prevzem tega predstandarda po metodi platnice je sprejela delovna skupina USM/TC KON/WG 3 Jeklene konstrukcije, ki je pripravila tudi nacionalni dokument za uporabo v Sloveniji, potrdil pa tehnični odbor USM/TC KON Konstrukcije.

Ta slovenski predstandard se lahko uporablja samo v skladu z nacionalnim dokumentom, ki je sestavni del SIST ENV 1993-2:2001.

Ta slovenski predstandard je dne 2000-12-04 odobril direktor USM.

Rok veljavnosti tega predstandarda je do izdaje evropskega standarda EN 1993-2.

## ZVEZE S STANDARDI

S prevzemom tega evropskega predstandarda veljajo za omejeni namen referenčnih standardov vsi standardi, navedeni v izvorniku, razen tistih, ki so že sprejeti kot nacionalni standardi:

SIST ENV 1991-1:1998	((sl),en)	Eurocode 1: Osnove projektiranja in vplivi na konstrukcije - 1. del: Osnove projektiranja
SIST ENV 1991-2-1:1998	((sl),en)	Eurocode 1: Osnove projektiranja in vplivi na konstrukcije - Del 2-1: Vplivi na konstrukcije - Gostote, lastna teža in koristne obtežbe
SIST ENV 1991-2-3:1998	((sl),en)	Eurocode 1: Osnove projektiranja in vplivi na konstrukcije - Del 2-3: Vplivi na konstrukcije - Obtežbe snega
SIST ENV 1991-2-4:1998	((sl),en)	Eurocode 1: Osnove projektiranja in vplivi na konstrukcije - Del 2-4: Vplivi na konstrukcije - Vplivi vetra
SIST ENV 1993-1-1:1996	((sl),en)	Eurocode 3: Projektiranje jeklenih konstrukcij - Del 1-1: Splošna pravila in pravila za stavbe
SIST ENV 1993-1-1:1996/A1:1996	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-1: Splošna pravila in pravila za stavbe - Dodatka D in K
SIST ENV 1993-1-1:1996/A2:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-1: Splošna pravila in pravila za stavbe - Dodatki G, H, J, N in Z
SIST ENV 1993-1-2:1999	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-2: Splošna pravila - Projektiranje požarnovarnih konstrukcij
SIST ENV 1993-1-3:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-3: Splošna pravila - Dodatna pravila za hladnooblikovane tankostenske profile in pločevine

SIST ENV 1993-1-4:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-4: Splošna pravila - Dodatna pravila za nerjavna jekla
SIST ENV 1993-1-5:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-5: Splošna pravila - Dodatna pravila za ravninske pločevinaste konstrukcije (ortotropne plošče) brez prečne obremenitve
SIST ENV 1993-1-6:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-6: Splošna pravila - Dodatna pravila za lupinaste konstrukcije
SIST ENV 1993-1-7:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 1-7: Splošna pravila - Dodatna pravila za ravninske pločevinaste konstrukcije (ortotropne plošče), obremenjene s prečno obtežbo
SIST ENV 1993-3-1:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 3-1: Stolpi, jambori in dimniki - Stolpi in jambori
SIST ENV 1993-3-2:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 3-2: Stolpi, jambori in dimniki - Dimniki
SIST ENV 1993-4-1:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 4-1: Silosi, rezervoarji in cevovodi - Silosi
SIST ENV 1993-4-2:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 4-2: Silosi, rezervoarji in cevovodi - Rezervoarji
SIST ENV 1993-4-3:2001	((sl),en)	Projektiranje jeklenih konstrukcij - Del 4-3: Silosi, rezervoarji in cevovodi - Cevovodi
SIST ENV 1993-5:2001	((sl),en)	Projektiranje jeklenih konstrukcij – 5. del: Piloti in zagatne stene
SIST ENV 1993-6:2001	((sl),en)	Projektiranje jeklenih konstrukcij – 6. del: Žerjavne proge

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**OPOMBI**

- Povesod, kjer se v besedilu predstandarda uporablja izraz "evropski predstandard", v SIST ENV 1993-2:2001 to pomeni "slovenski predstandard".
- Nacionalni uvod in nacionalni predgovor nista sestavni del predstandarda.

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## Nacionalni dokument za uporabo v Sloveniji

Za vrednosti parametrov, podanih v okvirju (večinoma delni varnostni faktorji odpornosti ali zunanjih vplivov), se v SIST ENV 1993-2:2001 privzamejo priporočene vrednosti, podane v ENV 1993-2:1997.

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Descriptors: steel construction, structural steels, structures, bridges, computation

English version

## Eurocode 3: Design of steel structures - Part 2: Steel bridges

Eurocode 3: Calcul des structures en acier - Partie 2: Ponts  
métalliques

Eurocode 3: Bemessung und Konstruktion von Stahlbauten  
- Teil 2: Stahlbrücken

This European Prestandard (ENV) was approved by CEN on 30 May 1997 as a prospective standard for provisional application.

The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard.

CEN members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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## Foreword

### Objectives of the Eurocodes

- (1) The "Structural Eurocodes" comprise a group of standards for the structural and geotechnical design of buildings and civil engineering works.
- (2) They cover execution and control only to the extent that is necessary to indicate the quality of the construction products, and the standard of the workmanship, needed to comply with the assumptions of the design rules.
- (3) Until the necessary set of harmonized technical specifications for products and for methods of testing their performance is available, some of the Structural Eurocodes cover some of these aspects in informative annexes.

### Background to the Eurocode programme

(4) The Commission of the European Communities (CEC) initiated the work of establishing a set of harmonized technical rules for the design of building and civil engineering works which would initially serve as an alternative to the different rules in force in the various member states and would ultimately replace them. These technical rules became known as the "Structural Eurocodes".

(5) In 1990, after consulting their respective member states, the CEC transferred the work of further development, issue and updating of the Structural Eurocodes to CEN, and the EFTA Secretariat agreed to support the CEN work.

(6) CEN Technical Committee CEN/TC 250 is responsible for all Structural Eurocodes.

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### Eurocode programme

(7) Work is in hand on the following Structural Eurocodes, each generally consisting of a number of parts:

EN 1991 Eurocode 1 Basis of design and actions on structures;

EN 1992 Eurocode 2 Design of concrete structures;

EN 1993 Eurocode 3 Design of steel structures;

EN 1994 Eurocode 4 Design of composite steel and concrete structures;

EN 1995 Eurocode 5 Design of timber structures;

EN 1996 Eurocode 6 Design of masonry structures;

EN 1997 Eurocode 7 Geotechnical design;

EN 1998 Eurocode 8 Design provisions for earthquake resistance of structures;

EN 1999 Eurocode 9 Design of aluminium alloy structures.

(8) Separate sub-committees have been formed by CEN/TC 250 for the various Eurocodes listed above.

(9) This Part 2 of Eurocode 3 is published by CEN as a European Prestandard (ENV) with an initial life of three years.

(10) This Prestandard is intended for experimental application.

(11) After approximately two years CEN members will be invited to submit formal comments to be taken into account in determining future actions.

(12) Meanwhile feedback and comments on this Prestandard should be sent to the secretariat of CEN/TC 250/SC 3 at the following address:

BSI Standards  
British Standards House  
389 Chiswick High Road  
London W4 4AL  
England

or to your national standards organization.

### National Application Documents (NADs)

(13) In view of the responsibilities of the authorities in member countries for safety, health and other matters covered by the essential requirements of the Construction Products Directive (CPD), certain safety elements in this ENV have been assigned indicative values which are identified by  ("boxed values"). The authorities in each member country are expected to review the "boxed values" and may substitute alternative definitive values for these safety elements for use in national application.

(14) Bridges are essentially public works, for which:

- the European Directive on contracts for public works is relevant;
- public authorities have responsibilities as owners.

(15) Within this context, this Prestandard has been established with two objectives:

- sufficient precision and comprehensiveness for contractual use;
- sufficient flexibility to allow the relevant authorities to exert their technical responsibilities.

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(16) Because of the responsibilities of public authorities for bridge design, it is expected that, for application, this ENV 1993-2 will be supplemented by:

- the general complementary rules and options in the National Application Document (NAD), see (19);
- complementary specifications and modifications for particular projects.

(17) Wherever this Prestandard uses such phrases as "unless specified otherwise by the competent authority", the intention is that the relevant authorities (to be identified, if necessary, in the NAD) can intervene at either of these two levels.

(18) Where this Prestandard makes reference to the "project specification", the intention is that the documentation defining a particular project can add complementary specifications and select options, which can include requirements of the competent authority as well as those of the owner, if these are separate.

(19) Some of the supporting European or International Standards might not be available by the time this Prestandard is issued. It is therefore anticipated that a National Application Document (NAD) giving any substitute definitive values for safety elements, referencing compatible supporting standards and providing guidance on the national application of this Prestandard, will be issued by each member country or its Standards Organization.

(20) It is intended that this Prestandard is used in conjunction with the NAD valid in the country where the bridge is located.

## Matters specific to this Prestandard

(21) The Parts of ENV 1993 that are currently envisaged are:

ENV 1993-1-1 General rules: General rules and rules for buildings;

ENV 1993-1-2 General rules: Structural fire design;

ENV 1993-1-3 General rules: Supplementary rules for cold formed thin gauge members and sheeting;

ENV 1993-1-4 General rules: Supplementary rules for stainless steels;

ENV 1993-1-5 General rules: Supplementary rules for the strength and stability of planar plated structures without transverse loading;

ENV 1993-2 Steel bridges;

ENV 1993-3 Towers, masts and chimneys;

ENV 1993-4 Silos, tanks and pipelines;

ENV 1993-5 Piling;

ENV 1993-6 Crane supporting structures;

ENV 1993-7 Marine and maritime structures;

ENV 1993-8 Agricultural structures.

(22) This Part 2 of Eurocode 3 has been produced to complement Part 1.1 for the design of bridges.

(23) Steel bridge design requires additional rules for plated structures, but these rules are not specific to bridges, so they have been provided separately as ENV 1993-1-5.

(24) Reference is made to both Part 1.1 and Part 1.5 and matters that are already covered in those documents are not repeated. Similarly reference is also made to Eurocode 1: Part 1 for matters concerning the basis of design instead of repeating them in this document.

(25) For the application of this Part 2 of Eurocode 3 it is assumed that the competent authority or the owner, if these are separate, will define the load model and the characteristic values of the traffic loads according to Part 3 of Eurocode 1.

(26) In each Section of the main portion of the text, the extent to which it supplements, modifies, replaces or supersedes the corresponding elements of Part 1.1 of Eurocode 3 is specifically indicated.

## 1 General

### 1.1 Scope

- (1)P This Part 2 of ENV 1993 gives a general basis for the structural design of steel bridges, steel parts of composite bridges and also steel temporary works in bridges. It gives provisions that supplement, modify or supersede the equivalent provisions given in ENV 1993-1-1, to which reference shall also be made.
- (2) This Part 2 also gives detailed application rules that are mainly applicable to commonly used types of bridge. Where the applicability of these rules is limited, for practical reason or due to simplifications, their use and any limits of applicability are explained in the text.
- (3) Provisions for composite bridges are covered in ENV 1994-2.
- (4) The design of steel bearing piles and steel sheet pile walls is covered in ENV 1993-5.
- (5)P The provisions of this Prestandard are also applicable to the steel parts of bridges that are mainly of other construction materials.
- (6)P This Prestandard is concerned only with provisions for resistance, serviceability and durability of bridge structures. Other aspects of design are not considered.
- (7)P Execution is covered to the extent that is necessary to indicate the quality of the construction materials and products that should be used and the standard of workmanship on site needed to comply with the assumptions of the design rules.
- (8) Provisions for the design of high strength cables and related parts are included in annex A. Pending the availability of European Standards for these items, annex A temporarily includes some aspects related to the materials used for them.
- (9) For the execution of steel bridge structures, reference should be made to ENV 1090-5.
- (10)P ENV 1993 does not cover the special requirements of seismic design. Reference shall be made to the requirements given in ENV 1998, which complements and modifies the rules of ENV 1993 specifically for this purpose.

### 1.2 Distinction between principles and application rules

- (1)P Depending on the contents of the individual paragraphs, a distinction is made in this Part between principles and application rules.
- (2)P The principles comprise:
- general or definitive statements for which there is no alternative;
  - requirements and analytical models for which no alternative is permitted unless specifically stated.
- (3) The principles are identified by the letter P following the paragraph number.
- (4)P The application rules are generally recognized rules that follow the principles and satisfy their requirements. Alternative design rules different from the application rules given in the Eurocode may be used, provided that it is shown that the alternative rule accords with the relevant principles and has at least the same reliability.
- (5) In this Part the application rules are identified by a number in brackets, as in this paragraph.